

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

690 Walnut Ave.St. 150

Vallejo, CA 94592-1133

(707) 649-5453

(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 70.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-006990**Date Inspected:** 27-May-2009**Project Name:** SAS Superstructure**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Contractor:** Japan Steel Works**OSM Arrival Time:** 730**OSM Departure Time:** 1630**Location:** Muroran, Japan**CWI Name:** Chung Fu Kuan**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower, Jacking, and Deviation Saddles**Summary of Items Observed:**

On this date Caltrans OSM Quality Assurance (QA) Inspector Mr. Art Peterson was present during the times noted above for observations relative to the work being performed in Fabrication shop #4 and the Foundry shop at Japan Steel Works.

**Machine Shop #4:**

Machining Operation of Saddle: Tower Saddle Segment T1-1 (cast section welded to steel section)

The QA Inspector observed that tower saddle segment T1-1 is located in Machine Shop #4 to have the final machining performed. On this date, the QA Inspector observed that the interior of the south cable trough is being milled to final dimensions on the tower saddle segment.

**Fabrication Shop #4:**

Weld Operation of Saddle: Tower Saddle Segment T1-2 (steel section being welded to steel section)

The QA Inspector observed the partial-joint penetration groove (cover pass) weld operation on the rib plate (steel section) to base plate (steel section) of tower saddle T1-2. The QA Inspector observed Quality Control (QC) Inspector Mr. Chung Fu Kuan verify prior to and during the weld operation that the minimum preheat temperature of 110 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. M. Kashiwada (08-2008) on weld joint no. 8Y-8L were in compliance with WPS SJ-3012-3 and WPS SJ-3012-2 per the FCAW-G and SMAW process in the (1G) flat position using (1.6) and (4.0) mm diameter TM55 and E7016 electrode, respectively. The QA Inspector observed that the partial-joint penetration groove (cover pass) weld operation was completed by the end of the QA Inspectors' shift.

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Weld Operation of Saddle: Tower Saddle Segment T1-3 (cast section being welded to steel section)

The QA Inspector observed the partial-joint penetration groove (fill pass) weld operation on the stem (cast section) to stem plate (steel section) of tower saddle T1-3. The QA Inspector observed Quality Control (QC) Inspector Mr. Chung Fu Kuan verify prior to and during the weld operation that the minimum preheat temperature of 110 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. Y. Maeyama (94-5234) on weld joint no. 9S-2U were in compliance with WPS SJ-3012-5 per the FCAW-G process in the (1G) flat position using (1.6) mm diameter TM55 electrode. The QA Inspector observed that the partial-joint penetration groove (fill pass) weld operation was in process at the end of the QA Inspectors' shift.

Storage of Saddle: West Deviation Saddle Segment W2-E1 (cast section welded to steel section)

The QA Inspector observed that west deviation saddle segment W2-E1 is located in Fabrication Shop #4. On this date, the QA Inspector observed that no work was performed on west deviation saddle segment W2-E1.

Machine Shop #2:

Machining Operation on Saddle: West Deviation Saddle Segment W2-E2 (cast section welded to steel section)

The QA Inspector observed that west deviation saddle segment W2-E2 is located in Machine Shop #2. On this date, the QA Inspector observed that no machining was performed on west deviation saddle segment W2-E2.

Fabrication Shop #4:

Cleaning Operation on Saddle: West Deviation Saddle Segment W2-E3 (cast section welded to steel section)

The QA Inspector observed that the post weld (stress relief) heat treatment operation was completed on west deviation saddle segment W2-E3. The JSW personnel were preparing the saddle segment for the blast cleaning operation prior to performing the final NDT inspection on the partial-joint penetration butt and tee-joint groove welds. The QA Inspector observed that the preparation into moving west deviation saddle segment W2-E3 was in process at the end of the QA Inspectors' shift.

Re-positioning of Saddle: West Deviation Saddle Segment W2-W1 (cast section being welded to steel section)

The QA Inspector observed that JSW personnel were re-positioning west deviation saddle segment W2-W1 in preparation to change the location of the welding operation on the rib (cast section) to rib plate (steel section) partial-joint penetration double bevel groove butt joint welding and also for the JSW welding personnel to weld in a more ideal position. The QA Inspector observed that the re-positioning of west deviation saddle segment W2-W1 was in process at the end of the QA Inspectors' shift.

Cleaning Operation of Saddle: West Deviation Saddle Segment W2-W2 (steel section)

The QA Inspector observed that the post weld (intermediate stress relief) heat treatment operation was completed on west deviation saddle segment W2-W2 (steel section). The JSW personnel were preparing the saddle segment for the blast cleaning operation prior to performing the NDT inspection on the partial-joint penetration butt and tee-joint groove welds. The QA Inspector observed that the preparation into moving west deviation saddle segment W2-W2 was in process at the end of the QA Inspectors' shift.

Re-location of Saddle: West Deviation Saddle Segment W2-W2 (cast section)

The QA Inspector observed that west deviation saddle segment W2-W2 (cast section) is located in the Fabrication Shop #4. The JSW personnel completed the dimensional inspection of the rib (cast section) and stem (cast section) of the west deviation saddle segment in Machine Shop #2 to verify the location and dimensions of the ribs and

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stem against the approved dimensional drawings and assembly control lines. The dimensional inspection was performed prior to the fit-up operation of west deviation saddle segment W2-W2 (steel section). On this date, the QA Inspector observed that no work was performed on west deviation saddle segment W2-W2 (cast section).

Weld Operation on Saddle: West Deviation Saddle Segment W2-W3 (steel section being welded to steel section)

The QA Inspector observed the partial-joint penetration groove (fill pass) weld operation on the stem plate (steel section) to base plate (steel section) of west deviation saddle segment W2-W3. The QA Inspector observed Quality Control (QC) Inspector Mr. Chung Fu Kuan verify prior to and during the weld operation that the minimum preheat temperature of 160 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. T. Kawakami (08-5079) on weld joint no. W3S-2L and Mr. D. Kito (08-5175) on weld joint no. W3S-2L were in compliance with WPS SJ-3011-1 per the FCAW process in the (1G) flat position using (1.6) mm diameter TM95 electrode. The QA Inspector observed that the partial-joint penetration groove (fill pass) weld operation was in process at the end of the QA Inspectors' shift.

Foundry:

Storage of Saddle: West Deviation Saddle Segment W2-W3 (cast section)

The QA Inspector observed that west deviation saddle segment W2-W3 (cast section) is located in the Foundry Shop for storage until west deviation saddle segment W2-W3 (steel section) is ready for the fit-up operation. On this date, the QA Inspector observed that no work was performed on west deviation saddle segment W2-W3 (cast section).

NDT Operation on Saddle: East Saddle E2-E1 (cast saddle)

The QA Inspector observed NIS QC NDT Personnel Mr. H. Kohama (#86) performing the ultrasonic test (UT) inspection on the rib section and trough section on the exterior of east saddle E2-E1. The UT inspection was performed in accordance with ASTM A609M and to the acceptance quality levels in Table 2 of ASTM A609M. The UT acceptance quality level (1) is for within (30) mm of the exterior and interior surface for the full length of the trough as shown on the plans and UT acceptance quality level (3) for areas outside of (30) mm of the surface for the full length of the trough and rib sections as shown on the the plans. The areas inspected were marked with (300 x 300) mm grid lines on the exterior of the trough and rib sections for record purposes, identity, and guidance in scanning. The QA Inspector observed that the UT inspection was in process at the end of the QA Inspectors' shift.

Weld Repair Operation pending on Saddle: East Saddle E2-W1 (cast saddle)

The QA Inspector observed that the JSW personnel were in preparation of re-locating east saddle E2-W1 to an area for the start of the repair weld operation on the excavated areas on the exterior of the trough and rib sections. The excavated areas were previously inspected by NIS QC NDT Inspector Mr. H. Kohama (#86) by the liquid penetrant test (PT) method and the magnetic particle test (MPT) method to ensure the complete removal of the rejectable indications. The QA Inspector observed that the JSW personnel were still in preparation of re-locating east saddle E2-W1 to an area to start the repair weld operation at the end of the QA Inspectors' shift.

NDT Operation on Rough Machined Surfaces of Saddle: West Jacking Saddle (cast saddle)

The QA Inspector observed that Nikko Inspection Services (NIS) NDT Personnel were preparing the west jacking saddle's base plate for liquid penetrant testing (PT), magnetic particle testing (MPT), and ultrasonic testing (UT) inspection by (laying out) marking (300 x 300) mm grid lines on the base plate for record purposes, identity and

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guidance in scanning. The QA Inspector observed that the layout operation was completed on the base plate by the end of the QA Inspectors' shift.

Unless otherwise noted, all observations reported on this date appeared to be in general compliance with the applicable contract documents.

### Summary of Conversations:

No significant conversations were reported on this date.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy, 510 385-5910, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Peterson, Art	Quality Assurance Inspector
<b>Reviewed By:</b>	Lanz, Joe	QA Reviewer

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